



地磁気世界資料解析センター News

1. 新着地磁気データ

前回ニュース (2016年1月28日発行, No.155) 以降入手、または、当センターで入力したデータのうち、オンラインデータ以外の主なものは以下のとおりです。

オンライン利用データの詳細は (<http://wdc.kugi.kyoto-u.ac.jp/catmap/index-j.html>) を、観測所名の省略記号等については、観測所カタログ (<http://wdc.kugi.kyoto-u.ac.jp/catmap/obs-j.html>) をご参照ください。

また、先週の新着オンライン利用可データは、(<http://wdc.kugi.kyoto-u.ac.jp/wdc/onnew/onnew-j.html>) で御覧になれ、ほぼ2ヶ月前までさかのぼることもできます。

Newly Arrived Data

Kp index : (<http://wdc.kugi.kyoto-u.ac.jp/kp/index-j.html>)

(Jan. - Feb., 2016)

2. ASY/SYM 指数

2016年1-2月のASY/SYM指数を算出し、ホームページに載せました。

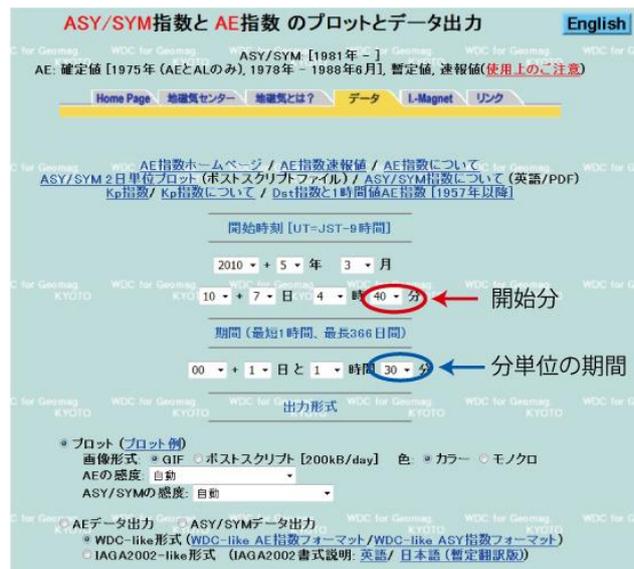
<http://wdc.kugi.kyoto-u.ac.jp/aeasy/index-j.html>

3. 観測所地磁気1分値とAE/ASYプロット/データ出力で1分単位指定が可能になりました。

観測所地磁気1分値 <http://wdc.kugi.kyoto-u.ac.jp/mdplt/index-j.html> と AE/ASYプロット/データ出力のページ <http://wdc.kugi.kyoto-u.ac.jp/aeasy/index-j.html> で開始時刻と期間については、これまで1時間単位でしか指定できなかったのが、分単位で指定できるようになりました。下図にあるように、画面で開始分や分単位の期間を指定します。

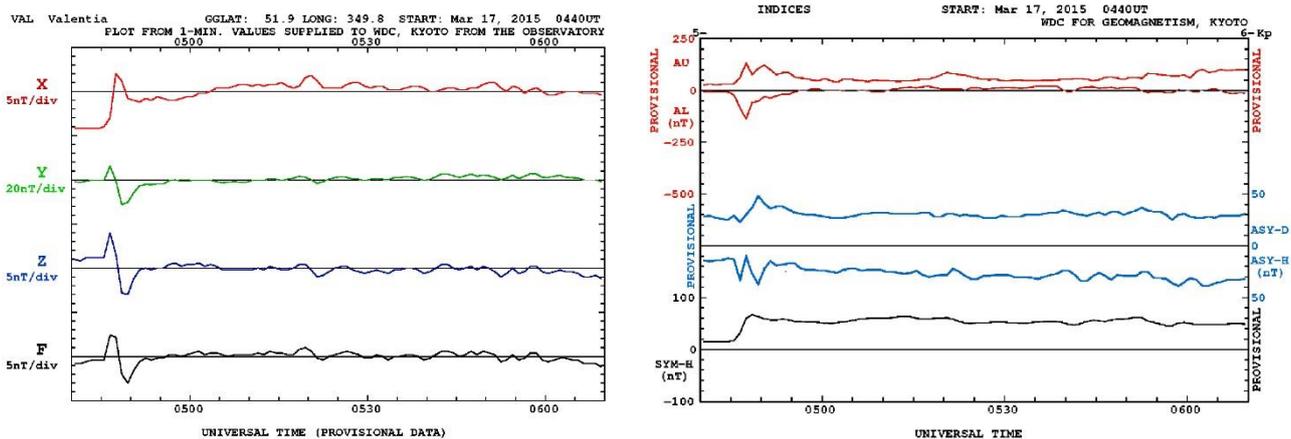


<地磁気1分値プロット/データ出力>



<AE/ASYプロット/データ出力>

上記サブミットでのプロット結果は以下のようになります。



なお、仕様/注意点は以下の通りです。

1. 指定できる期間は最小1時間、最大366日ですが、開始時刻が0時0分でないとい日少なくなることがあります。
2. データ出力の際 WDC 或いはそれに準じた形式を指定すると1時間1レコードのため指定した期間より長めの期間の出力となります。
3. フォームが従来のは異なるので、古いフォームがキャッシュに残っている場合にはクリアして再読み込み後サブミットする必要があります。

4. The importance of the Humboldtian ideal for education, science and research at present - Systems and topics of science and education in the tug of war between freedom and market-



Alexander von Humboldt (1769-1859)

Alexander and Wilhelm von Humboldt were brothers, born in, respectively, Berlin and Potsdam in the second half of the 18th century, the age of Enlightenment and the French Revolution in Europe. It was also an incredibly creative era, inspiring many important German novelists, and philosophers, such as Goethe, Schiller, Heine, Herder, Kant, Fichte, but also musicians such as Beethoven, Schubert, Haydn, not to mention scientists, such as Gauss, Fraunhofer, Herschel, Lichtenberg, Ohm, and others. Whereas Alexander became a natural scientist, geographer and explorer, his brother Wilhelm worked as a philosopher, linguist and Scientist of education. Both together formed the Prussian concept of a humanistic and holistic education and science system, combining both humanities and natural sciences. From our perspective today, both can be considered to have been universal scholars, with Alexander focusing more on natural sciences and Wilhelm on humanities

and art. In this, they embody the ideal suggested in the adage “two sides of the same coin”. Even more, they can be appreciated as the

masterminds (or “fathers”) of a modern global Open Science approach, emphasizing a world-wide network of science and research, including a cross-domain inquiry and exchange of scientific data and results.

The Humboldtian education ideal, also called Humboldtian model or concept of higher education is mainly based on the work and creativity of Wilhelm von Humboldt, who was the head of the Prussian directorate of

education in Berlin at the beginning of the 19th century. The English representation of the “Humboldtsche Bildungsideal” focusing on higher education often poorly characterizes this systemic orientation, which engages the complete education system from basic schools to secondary schools on to education and research at universities. His approach is based on a humanistic ideal and holistic combination of education and research. As a linguist and expert of classical languages, such as Latin and ancient Greek, Wilhelm emphasizes language skills and linguistics as main part of human and societal culture and therefore as a main pillar for furthering universal education and leading to a high level of general knowledge. His universal concept of humanistic education combines in an ideal way humanities, natural sciences and art. Another pillar of his approach is academic freedom in education, science and research for students, teachers and scientists. Freedom especially means the independence from dogma, authority and tradition. This also implies the non-interference and non-intervention of public and private funders with topics in education and science. Another aspect of freedom is viewing basic education of students as requirement for the independent development of a ‘humanistic personality’ that complements further education and professional practice. Beside its own domain, the study of fundamental assumption about the world and the human existence, philosophy is seen not only as the glue between different natural science disciplines but also the humanities. Instead of just learning and teaching of facts as knowledge, he emphasizes holistic education based on logic, reason and empiricism as another pedagogical pillar and a requirement for the proper use of factual



Wilhelm von Humboldt (1767-1835)



The Humboldt University of Berlin is the first modern university in the world

knowledge. The Humboldt University of Berlin, founded under the influence of Wilhelm von Humboldt in 1810, and acting according to his precepts, later became the center of science and research, not only in Germany but all of Europe and beyond. In that spirit, almost 30 Nobel Prize winners in physics, chemistry, medicine and literature have been former students of this university in the 20th century, especially before World War II.

Coming to the present, how does the education system now look in Germany, Europe, the United States of America (USA) or Japan, about 200 years after the development and introduction of the Humboldtian education and science concept, and the founding of the Humboldt University in Berlin? What happened to the humanistic ideal of education and research at schools and universities around the globe? While the success of these concepts in Germany had led many countries, such as USA and Japan to integrate Humboldtian ideas into their education systems, the situation has shifted dramatically. In order to analyze the current situation in Germany, we have to distinguish first between East and West Germany during the period of the Cold War. Whereas West Germany was structured in federal states with granted educational autonomy and responsibility, East Germany was a centralized state with standardized rules for education and even science and research. This centralized and mostly performance-based education system in East Germany was consistent and effective. In West Germany, however, the result was a fragmented and inconsistent education

system with different standards and levels of performance. For students it was big challenge to change schools when moving to another federal state. This problem still exists in the unified Germany today. At present, only a minority of students finishes education at school with “Abitur”, the final examination which is required for further education at universities. Especially in East Germany, the education at colleges and universities was more or less related to economic needs of society. Nowadays the trend of market-oriented education and research in Germany is increasing, and is largely ignoring the Humboldtian humanistic education and science ideal. There is also a tendency that research funding increasingly comes from private entities and therefore research activities are especially influenced by private economic interests. The Bologna Process, a European Union (EU) initiative since 1999 for achieving harmonization and compatibility in higher education standards and quality in the EU had, and is still having, a big impact, especially on the German higher education system. The college and university curricula and diploma degrees, formerly praised worldwide, were adapted to suit bachelor and master curricula and certifications. This process has led to serious distortions and is still ongoing. Another aspect of this approach has had grave implications for the Humboldtian ideal of education and science. Instead of a revival of Humboldt’s concepts, higher education systems and standards are mainly driven by economic concerns of the institutions. Chris Lorenz of the VU University Amsterdam has expressed [1] “the basic idea behind all educational EU-plans is economic: the basic idea is the enlargement of scale of the European systems of higher education, ... in order to enhance its 'competitiveness' by cutting down costs. Therefore a Europe-wide standardization of the 'values' produced in each of the national higher educational systems is called for.” Just as the World Trade Organization (WTO) and General Agreement on Trade in Services (GATS) propose educational reforms that would effectively erode all effective forms of democratic political control over higher education, so “it is obvious that the economic view on higher education recently developed and formulated by the EU Declarations is similar to and compatible with the view developed by the WTO and by GATS.” Also outside of the EU, particularly in the USA, education, science and research becomes more and more market-oriented and determined by particular interests. Research partnerships between universities and industry are created according to proposals of the Organisation for Economic Co-operation and Development (OECD) with the objective of rapidly developing and bringing innovations to the market. The new premise for education, science and research, inevitably leads to a conflict between humanistic and market-driven approaches to higher education. There are serious doubts about the long-term sustainability of this new model. The focusing on the market as main indicator for higher education, as well as scientific-technological and social progress, will narrow the human mind and intellectual power, and possibly even set back or stop further societal developments.



Signs of different school types and gyms on a school campus in Germany



Schiller, Wilhelm and Alexander von Humboldt as well as Goethe in Jena

From my own experience as a scientist working in the field of information science in Potsdam and Kyoto, I think a contemporary humanistic and ethics-driven Humboldtian approach should also contain substantial education about recent and modern history. This knowledge is necessary for a comprehensive impact assessment of science and research activities for society and beyond, e.g. in nuclear sciences, but also technological developments, e.g. artificial intelligence and autonomous systems. Beside the admission that funding agencies can determine the science and research agenda, the following example illustrates the dependence of science and research on particular interests. Scientific work at universities and institutions is mainly judged by publications. The rating of the work and the scientist increases with the ranking of the journal in the Science Citation Index. A study at the University of Montreal shows [2] that the sector of research publishing is now dominated by just five publishing houses. This means, among other things, that these publishers can wield power and influence on education and research facilities, such as universities, but also on the very topics science and research topics. This contradicts the Humboldtian ideal of academic freedom and self-determination.



Operation Castle thermonuclear test, Castle Romeo shot



Faust in the study room (Georg Kersting, 1892)

To accomplish Dr. Faust's greatest wish and the dream of every scientist in achieving the highest level of wisdom, it is instructive to quote from Goethe's famous novel *Faust: Eine Tragödie* [3]: "Das ich erkenne, was die Welt im Innersten zusammenhaelt", ("So that I may perceive whatever holds the world together in its inmost folds"). This lofty goal requires moving beyond market-oriented education and knowledge, and advancing the capability to recognize and fully utilize the coherence in natural sciences, humanities and art. The returning to the Humboldtian humanistic ideal in education and science combined with the new technical means of the 21st century would give the students and scientists worldwide the chance for universal and independent education and research that holds a humanistic approach to generating knowledge beyond the pressures of the commercial world.

[1] Lorenz, Chris (January 2006). "[Will the universities survive the European Integration? Higher Education Policies in the EU and in the Netherlands before and after the Bologna Declaration](#)" (PDF). *University of Amsterdam*. Retrieved 18 March 2016.

[2] Larivière V, Haustein S, Mongeon P (2015), The Oligopoly of Academic Publishers in the Digital Era. *PLoS ONE* 10(6): e0127502. doi:10.1371/journal.pone.0127502

[3] Faust. Eine Tragödie [1808]. Historisch-kritisch ediert und kommentiert von Karl Heinrich Hücke. Aschendorff, Münster 2008, ISBN 978-3-402-12755-1

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Gesammelte Schriften by Humboldt, Wilhelm, Freiherr von, 1767-1835, Koeniglich Preussische Akademie der Wissenschaften, 1903, Publisher Albert Leitzmann etc.
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The Oxford Companion to The History of Modern Science, J.L. Heilbrom, Oxford 2003, ISBN-13: 9780195112290

Revisiting Humboldtian Science, Report, 2015, Gotha, Sybilla Nikolow, Institute for Interdisciplinary Studies of Science, University Bielefeld

Exploration and Science: Social Impact and Interaction, Michael S. Reidy, Gary R. Kroll, Erik M. Conway

All pictures are public domain and taken from Wikipedia.

(Bernd Ritschel – Kyoto University, Graduate School of Science)

5. 2015年のkp指数図表

2015年のKp指数図表 (Bartels musical diagram) を下に示します。

Kp指数の数値 (1932年以降)、及び1990年以降のKp指数図表は <http://wdc.kugi.kyoto-u.ac.jp/kp/index-j.html> からご利用になれます。最新のKp指数は原則として翌月半ばには利用可能となります。

また、Kp指数のデータや図表のオリジナルは、現在の算出元である Deutsches GeoForschungsZentrum GFZ のKp指数のページ <http://www.gfz-potsdam.de/sektion/erdmagnetfeld/daten-produkte-dienste/kp-index> の下に置かれています。

